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**THE USE OF A GEOGRAPHIC INFORMATION SYSTEM
TO INVESTIGATE SOIL SLIP DISTRIBUTION AND
THE LAND USE CAPABILITY CLASSIFICATION
IN THE EAST COAST REGION, NEW ZEALAND.**

A thesis presented in partial fulfilment of the requirements
for the degree of Master of Applied Science
in Soil Science at Massey University

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ABSTRACT

The land of the North Island East Coast region has such a severe erosion problem that in some places the current land use cannot be sustained. The expansion of exotic forestry in the region will provide protection for the land, regional growth and development, and employment, but it also brings competition for good land.

The New Zealand Resource Management Act, 1991, aims to promote sustainable use of our resources and requires regulatory authorities to monitor the state of their natural resources and to follow the principles set in the RMA when developing land use policies.

Remotely sensed data provides a timely and accurate assessment of surface features. Aerial photography provides a better delineation of soil slip erosion than satellite imagery.

Geographic Information Systems facilitate the storage and display of resource information. Through manipulation of GIS data layers, relationships between the distribution of soil slip erosion following Cyclone Bola, 1988, and other physical factors are investigated. The density of soil slip increases with increasing slope angle to a maximum on slopes of 30° . The amount of soil slip depends on the underlying rock type with jointed mudstone having the highest density. Most soil slip erosion occurs on NE, N, NW, and E facing slopes, but the reason for this cannot be attributed to either slope angle or rock type.

The Land Use Capability classification is currently used by land use managers and planners to describe the land in terms of its limitation to productive uses. The detail of information in the New Zealand Land Resource Inventory LUC classification can be improved by incorporating more detailed slope angle and slope aspect information derived from digital contour data.

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